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ON CONGESTION.

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BY CONGESTION is understood a preternatural and disproportionate accumulation of blood in the vessels of some particular part of the animal system. Congestion makes a great figure in the writings of some late pathologists; but it is believed to be always a mere effect, and never a cause of disease, and that it is a matter of comparatively small consequence, and, therefore, that an undue importance has been attached to it. However, be this as it may, it appears to me certain that erroneous opinions, in relation to it, are at present widely prevalent, and therefore it is a topic well worthy of consideration.

The heart is well known to be the principal, if not the sole organ, by whose power the blood is propelled from the internal and central parts of the system to the external and extreme parts. It is well known, also, that the atmosphere presses upon the human body, with the weight of a column of quicksilver of about thirty inches, or a column of water of about thirty-three feet. This is calculated to be equivalent to about fifteen pounds to every superficial inch, or about fourteen tons upon an ordinary sized man. Now the pressure of the atmosphere is a powerful antagonist, or opposing power, to the action of the heart in filling the superficial capillaries. When we consider these facts, it will be obvious that the relative distribution of the blood, between the internal and external parts of the system, must inevitably be varied by any disturbance of the balance between the strength of the action of the heart and the atmospheric pressure. In fact, this disturbance of balance, between these two antagonist powers, must be the most common, and even the principal cause of congestions. Conclusive evidence of this position is found in the familiar fact, that, on the exhaustion of air from a cup applied to any part of the skin, a considerable congestion of blood, in the vessels of the part over which the cup is applied, immediately takes place.

But, by those ignorant of the variations in the relative distribution of the blood between the external and internal parts of the system, in consequence of a disturbance of the balance between the strength of the action of the heart and the degree of atmospheric pressure, an explanation of the swelling of a part that is covered by the receiver of an air-pump, from which the air is more or less exhausted, has been

attempted in two other ways, viz. : by the expansion of the mass of the circulating fluid itself, and by the rarefaction of the air supposed to be contained in it. As liquids, however, are but slightly compressible and expansible by increase or diminution of pressure, the first solution is altogether inadmissible. The latter, indeed, has more plausibility, but is nevertheless entirely inadequate to the purpose for which it has been used. There is not, in reality, sufficient air contained in the blood to produce a twentieth part of the effect in question ; and, besides, the phenomena that are to be explained take place under such circumstances as would not, in any way, affect the expansibility of what little air is actually contained within the system. In my view, there is conclusive evidence that superficial congestion is not occasioned by the expansion of the air in the blood, in consequence of a diminution of atmospheric pressure, from the fact, that increasing the strength of the action of the heart, without any diminution of atmospheric pressure, equally occasions superficial congestion. That the equable distribution of the blood, between the internal and external parts of the body, is mainly dependent upon the relative strength of the action of the heart, and the degree of atmospheric pressure upon the surface of the body, is supported by the most satisfactory evidence, and (as I think) may be considered as resting upon the highest proof. Various pathological phenomena will be mentioned hereafter, which prove these points still more decisively.

As the brain is surrounded by an impenetrable and unyielding bony paries, from which atmospheric pressure is entirely excluded, and, besides, is situated at one of the extremities of the body, remote from the centre of the circulation—it is much more liable to be affected by variations, in the relative strength of the action of the heart, and the degree of atmospheric pressure upon the surface, than any other part of the system. Next to the encephalon, the thoracic viscera are the least affected by the weight of the atmosphere ; and the abdominal viscera are undoubtedly considerably less under its influence than the surface of the body.

One of the purposes answered in the animal economy, by having the brain surrounded by a bony paries, from which atmospheric air is excluded, is undoubtedly the prevention of immediate death, under great hæmorrhage, by a greater relative determination of blood to this viscus ; since a greater proportion of blood is necessary for the continuance of the functions of the brain, than for a continuance of the functions of any other part ; and, in cases of considerable hæmorrhage, if this organ had not more than its proportional share of the vital fluid, life must cease in many instances where the patient now recovers.

Inflammation, independent of any disturbance of balance between the strength of the action of the heart and the degree of atmospheric pressure, also occasions a congestion of blood in the vessels of the part in which it is seated, and this congestion is essential to inflammation as a disease.

Any considerable local atony, or diminution of the power of resistance to the *vis a tergo*, in the vessels of any particular part or organ, likewise occasions a congestion of blood in such part, independent of any disturbance of balance between the two antagonist powers just mentioned.

Great intellectual exertion, and, as is supposed, a paroxysm of raving in mania, occasion a temporary preternatural determination of blood to the head; but, as this is always inconsiderable and transient, and, as a symptom, never requires the interference of art, it is not to be considered as a pathological congestion.

Sometimes two or more of these causes will be combined, in the production of particular cases of congestion. For example: in a superficial entonic or active inflammation, the preternatural strength of the action of the heart, which always accompanies such a case, if it is of any considerable extent, concurs with the inflammation itself, in the production of a congestion in the vessels of the diseased part; and, in an atonic or passive visceral inflammation, in connection with which, the strength of the action of the heart is always diminished, the atmospheric pressure upon the surface of the body concurs with the local disease, in the production of the congestion. In the last case, a diminution of the vital energies of the vessels of the diseased part, in a proportion greater than that of the rest of the circulating system, is another concurrent cause of congestion in the seat of the topical affection.

From these laws, it will be obvious that congestion may be produced in the following five ways:—

1st. General superficial congestion takes place when the strength of the action of the heart is preternaturally increased, so as to disturb the balance between atmospheric pressure and the *vis a tergo*. If this preternatural increase of the strength of the action of the heart is not extreme, mere simple superficial congestion is all that takes place; but if it is extreme, the blood is so forcibly propelled from the centre to the extremities of the circulation—or, in other words, from the heart into the capillaries—that a congestion also takes place in the minute vessels of the brain, as well as in those of the surface of the body. This congestion in the brain, as well as in the surface, is owing to the fact, that atmospheric pressure is entirely excluded from the encephalon, by means of the bony paries with which it is surrounded; so that there is no antagonist power, in this part of the system (except the mere contractility of the coats of the bloodvessels), to the *vis a tergo*. General superficial congestion, produced in this way, is always of an entonic, sthenic, or phlogistic character; and an ordinary case of true cauma or synocha affords a familiar illustration of it. The addition of cerebral to superficial congestion, shows a still more intense degree of entonic, sthenic, or phlogistic diathesis, and is well illustrated by neglected or ill-treated cauma or synocha, which passes into cephalitis-caumatodes. This sort of congestion can be relieved only by reducing the strength of the action of the heart, which is effected, in by far the best manner, by bloodletting; but, as is believed by many, may be accomplished also by sufficiently large quantities of nitrate of potassa, and some other agents of similar powers, though these means are probably less eligible than depletion.

It is well known that in pure and unmixed cauma or synocha, and in all the unequivocal and exclusively caumatoid phlogotica, there is a very considerable preternatural increase of the strength of the action of the heart; and (as we should expect) there is a consequent congestion of blood in the vessels of the surface of the body. This is evinced by the strong

sensation of superficial fulness and distension which the patient constantly feels, and by the actual turgescence and tumefaction visible even to the bystanders. When the preternatural strength of the action of the heart, in these diseases, is removed (as it can be perfectly done), either by depletion or very large and often-repeated doses of nitrate of potassa, etc., the fulness and distension of the surface immediately disappears, and it assumes a comparatively shrunk appearance. That these agents produce this effect, in consequence of diminishing the preternatural strength of the action of the heart, is evident from the circumstance that the effect in question never takes place without this previous reduction. Now, when we let blood, we weaken the force of the action of the heart, without lessening the pressure of the atmosphere. The capillaries of the surface are consequently not so well filled with blood, on account of this disturbance of the balance between the strength of the action of the heart and the atmospheric pressure; a paleness of the skin is produced, and there is a greater relative determination of blood to the viscera, upon which there is no material atmospheric pressure.

But it may possibly be supposed that bloodletting produces this effect exclusively by its reduction of the mass of the circulating fluid, without at all varying the relative distribution of the blood between the internal and external parts. It is, however, a well-ascertained fact, that the process of depletion actually varies the relative distribution of the blood—perhaps even more than in the same proportion in which it lessens the mass of the blood circulating in the vessels. The disproportionate variation in the relative distribution of the blood, which is produced in this way, is, however, always from the surface, and towards the viscera, and particularly towards the head. In proof of this, I shall hereafter quote several physiologists and pathologists, who treat directly upon this point. It is conclusive that the shrinking and paleness of the surface, which follow an ordinary depletion of blood, are not entirely or even mainly occasioned by a mere reduction of the mass of the circulating fluids; that exactly the same shrinking and paleness may be produced, in the same circumstances, by a sufficiently free use of nitrate of potassa, tartrate of antimony, etc., without any depletion, or any evacuation of any sort. In cases where there was no previous diminution of the strength of the action of the heart, and consequently no congestion of blood in the vessels of the brain, a mere ordinary bleeding seems even to increase the positive, as well as the relative quantity of blood in the head; but an extreme depletion diminishes the positive, while it increases the relative quantity. In cases where there was very considerable previous atony, and very considerable congestion in the vessels of the brain, a moderate bleeding seems likewise to increase both the relative and the positive quantity of blood in the head. We cannot say what would be the operation of a very large bleeding in such cases, in relation to cerebral congestion, because such a bleeding, under such circumstances, I believe infallibly destroys the patient.

2d. General superficial congestion sometimes takes place from a paralysis of the capillaries of the surface, and this even when the strength of the action of the heart is greatly impaired. This sort of congestion is always atonic or asthenic, in the highest degree. I have

never witnessed it, except, in a few cases, immediately on the attack of that singular disease, typhus syncopalis—and in this only in instances that were speedily fatal. I have been informed of its occurrence in some cases of rosalia or scarlet fever. In the few instances in which this sort of congestion has fallen under my observation, the most shocking swelling of the whole surface of the body has rapidly taken place, and the internal parts of the system have seemed to be almost destitute of blood. The most powerful stimulants are the only means, within my knowledge, that have ever seemed to afford any relief in this sort of congestion; and hitherto even these have proved only palliatives, and not remedies, in those cases of it which have occurred in typhus syncopalis.

3d. General visceral congestion takes place only when the strength of the action of the heart is more or less impaired, so as to disturb the balance between the *vis a tergo* and the atmospheric pressure upon the surface of the body. In this sort of congestion, there is a greater determination of blood to the head than to any other part, and a greater to the chest than to the abdomen; because this is the order in which they are least affected by atmospheric pressure. This variety of congestion is always atonic, and it exists to a greater or less extent in all the species of typhus—also in all cases accompanied with debility of the heart and arterial system; and, to a greater or less degree, it is the invariable result of free depletion, except in general entonic diseases. Congestion of this character can be remedied only by invigorating the system generally, and particularly by increasing the strength of the action of the heart.

I have observed that the viscera are not materially affected by the external atmospheric pressure. This is strictly true, with a very slight exception; for, so far as the external bulk of the body is actually lessened by this pressure, they are slightly compressed, when not defended by a bony paries. The brain, however, is surrounded by an impermeable and unyielding bony paries, into which atmospheric air can have no access. Now it will be obvious that the more the force of the action of the heart is weakened, either by the abstraction of blood or by any other means, the less able will it be to fill the superficial capillaries upon which the atmosphere presses, and consequently the greater will be the determination of blood to the viscera; and the greatest must necessarily be to the brain, because this is least affected by atmospheric pressure—or because, in truth, it is not at all affected by such pressure.

Of late, indeed, it has been contended, by some distinguished physiologists, that atmospheric pressure is the sole agent in producing the motion of the blood in the veins; but though I do not think that this has been shown satisfactorily, and though I do not doubt that the motion of the blood in the veins is mainly caused by a power which is to be sought for in the system—yet, as I have just said, I consider it as capable of the most satisfactory proof, that the equable distribution of the blood, between the internal and external parts of the body, is mainly dependent upon the relative strength of the action of the heart, and the degree of atmospheric pressure upon the surface. I consider it certain, that the reason why there are general visceral congestions in low typhus, of

whatever species, is the diminution of the strength of the action of the heart, while the atmospheric pressure remains the same ; and the reason why there are greater congestions in one viscus than in another, is principally a greater diminution of the power of resisting the combined force of the heart, and of atmospheric pressure, in the vascular system of such viscus.

But it may, perhaps, be supposed that this last statement is the result of reasoning merely ; and it may be inquired, how do facts correspond ? Setting aside the personal observations and experience of the author of these remarks, and of the professional gentlemen with whom he has practised, let us examine well-known and published testimonials, from highly distinguished physicians. DR. GOOD says—"In the commotion which takes place from copious venesection, it should be observed that there are often local determinations" (of blood) ; "for, the more we lessen the general strength, the more we make an inroad upon the instinctive power of preserving a balance in the circulating system ; and, as the determinations are almost uniformly accompanied with an *apparent, though a deceptive increase of force, as well as fulness in the pulse, and other symptoms of great violence of action*, the friend to phlebotomy is too often stimulated to an excessive use of his lancet, through several times in succession, still wondering at the perversity of an action, whose mischievous, and, it may be, fatal perseverance, is only maintained by his own exertions."

DR. PRING, upon the subject of congestion of blood in the brain, remarks :—"It is commonly, and, in my own experience, it has been invariably the case, that those who have sustained great losses of blood suffer more or less from what is called *determination to the head*." "Most commonly the symptoms are intense pain and throbbing in the forehead or back part of the head, with a pulse seldom under ninety." DR. PRING adds—"I have known these symptoms to proceed on, with a pulse from a hundred and twenty to a hundred and forty, to delirium, APOPLEXY, and death."

DR. COPLAND (in a paper in the London Medical Repository) observes :—"The current of opinion has lately set strongly in favor of the supposition (and it is no more than supposition), that whatever symptoms appear, which may be referred to cerebral excitement, there must consequently be inflammation, general plethora, or local determination." "That the last named state of the circulation may be often present under such circumstances, we will readily allow ; but that either of the other two conditions should exist, or be necessary to the production of the manifestations in question, is perfectly gratuitous, and what we positively deny." "In support of this, we can refer to facts derived from experiment and observation." "Bleed a man, or any other animal, frequently, largely, but gradually, either when in good health, or when suffering under some disorder not connected with cerebral excitement, and, as a consequence of such conduct, if the depletion be carried too far, we shall have symptoms denoting determination to the brain. If further depletion be instituted, delirium will generally supervene ; and, even if depletion be carried so far as to produce death, the cerebral derangement will be manifest to the last moment of existence. On

dissection, while all the other textures shall be found entirely deprived of blood, the brain will generally evince more than natural vascularity, and always an infinitely greater fulness of blood, relatively, than any other part of the body." "We will allow that these effects are not observed, if very large quantities of blood are lost" (at once), "so as to deprive the animal of life, in a very short space of time: but here the reason is obvious; the animal dies before the vascular system is accommodated to the mass of the blood circulating in it." "Now we assert that we have observed these phenomena which we have described, and have seen those appearances in individuals whose lives we consider to have been lost by ultra-depletion; and we further know that the same phenomena have been uniformly noticed in experiments upon brute animals." "But we shall be excused if we briefly illustrate this important point by more familiar examples." "How often is it observed, in profuse uterine hæmorrhages, that, when the patient is but just saved from the immediate loss of blood, great care is requisite to save her from the nervous derangement which uniformly supervenes." "Irritative fever is always the consequence, and is more immediately the consequence of the local determination and irritation to which the brain is subjected,* notwithstanding that the state of the parts concerned in the process which she had previously experienced, might be supposed to divert from that organ." "In such cases, the arteries running to the head beat violently; sensation is quick and lively; the least irritation of the organs of sense, or excitement of moral affections, is apt to induce delirious manifestations; the lower extremities are pale, shrunk, and cold, while the head is hot, painful, etc." "Now all know the treatment which alone succeeds in these cases—which treatment further illustrates that peculiar state of the vascular system, and of the body itself, in which the cerebral excitement originates." "But not only is local determination, and especially to the brain, the consequence of depletion; it still more familiarly supervenes upon a low state of the vital energies of the system." "The individual, in whom these energies are perfect, is seldom subject to those disorders which depend upon local plethora or excitement; it is principally those, in whom the vital or nervous powers of the constitution are greatly weakened, who experience local determinations, or those derangements in the circulation of the brain, which are evinced by corporeal and mental derangements." "It is chiefly to those individuals, that the dictum *ubi irritatio ibi fluxus* is strictly applicable; and, whether the irritation be of a physical or a moral nature, the effects will be apparent, and commensurate with its intensity, or with that disposition of the system to which we have alluded."

BONNAR records the phenomena which appeared on *post obit* examination of a person who died from hæmorrhage:—"A man, aged 34, of

* Our author appears to me to be unfortunate in this attempt at a rationale. The nervous disturbance produced by great hæmorrhage, and the irritative constitutional febrile affection, which takes place at the same time, in my view is not, as is supposed, the result of the increased determination of blood to the brain; but the former is probably the effect of the weakness produced by what is, in reality, a positively deficient supply of blood to the brain, and the latter is a perfect *æstus of inanition*, produced by a want of nutrient matter in the greatly diminished mass of circulating fluid, for the assimilating vessels to act upon, and it is perfectly analogous to what takes place from actual starvation. The cerebral excitement spoken of, in the next sentence but one, is more irritation, originating in the same manner.

a spare habit of body, lost, by epistaxis, about three pounds of blood." "This took place about the end of August." "In about ten days afterwards, as soon as he had recovered his former strength, the bleeding recurred, and continued to do so at intervals, till the third of October, when he died." "The quantity of blood which he lost was carefully measured by the attendants, and was calculated to be upwards of 35 pounds." BONNAR remarks that, "in the history of this case, some facts of considerable importance must be noted, and," he says, "they ought always to be kept in recollection, during the employment of large depletions." "To the very last, the muscular strength of the patient remained tolerably good." "Almost immediately before death, he could raise himself in bed; and, had it not been for the oppressive, and most painful" distressing "sickness, he would have been capable of a very considerable degree of exertion, at a time when not many ounces of blood were circulating in his system." "After every one of the attacks, *the pulse rose considerably in strength and frequency.*" "The blood was, in every instance, very soon coagulated, but showed none of the buffy coat." BONNAR remarks, that "*the rising of the pulse, after excessive bleeding, has been remarked by many of the best pathologists.*" He adds—"A knowledge of the phenomena, resulting from excessive losses of blood, ought to teach us, that *an excited state of the arterial pulsation** is by no means a proof of the necessity of depleting measures," etc.

DR. JAMES JOHNSON says—in a brute animal, bled to death by opening the jugular veins, "the contents of the cranium and spinal canal were so gorged with blood, that it might, at first sight, have been imagined that bleeding would have saved the animal." He declares that, "in every case where brute animals were bled to death, there was effusion of water in the brain, and on the spinal cord, often accompanied with red spots, like inflammation." He says—"Every one must have seen effusion in the chest, from carrying bloodletting too far, in certain kinds of pneumonitis, accompanied with typhoid fever, and with irregular distributions of blood." He adds—"With these facts and reasonings before our eyes, is it not evident that the present rage for subduing fever by bloodletting alone, and that not by pints, but by half-gallons at a time, is pregnant with danger, and likely to bring a valuable remedy into utter

* It should be particularly remarked, that the "apparent, though deceptive increase of force, as well as fulness, in the pulse, and other symptoms of great violence of action," of which DR. GOOD speaks, as so often following bloodletting, and the *considerable rising of the pulse* "in strength and frequency," and "the excited state of the arterial pulsation," of which DR. BONNAR speaks, as following each attack of hemorrhage, are, in fact, merely "apparent and deceptive," and do, in reality, consist in irritation instead of strength. I have often witnessed what is so generally called "the rising of the pulse," from depletion, and, so far as relates to *strength of action merely*, I have uniformly found that the artery yielded, and pulsation became imperceptible, under much less pressure, after bleeding, than it did before. I think I may affirm safely, that bleeding *always*, and *without exception*, diminishes the *force* of the pulse, as well in atonic as in entonic cases, and as well in cases in which neither of these conditions exists. I repeat, that what is called a *rising of the pulse*, after bleeding, is not an increase of the *strength* of the arterial action. When the pulse is preternatural, and at the same time small or contracted, and wirey, or feeling like a tense cord, and perceptible both in its systole and diastole (as in entonic phlegmonous enteritis)—bleeding, while it diminishes the *force* of the pulsation, also relaxes the contraction, so that the artery becomes larger, and the pulsation more distinct, as well as softer and weaker. This some may call a *rising of the pulse*; but such a condition of the circulation never occurs, except in highly phlogistic diseases. When the pulse is preternaturally weak, and at the same time small or contracted, and wirey, and feeling like a tense cord, makes it more full, nor more distinct, nor produces any other effect that can justly be called a *rising of the pulse*. Certainly a short or quick, and a jerking beat of the artery, which often follows injudicious bleeding, does not constitute a *rising of the pulse*, since it always indicates both a diminution of fulness, and a diminution of strength.

disgrace?" "Indeed" (he says, in another place), "we have frequent occasion to deplore the ultra-depletory mania, which has seized some weak brains of the present day, and much fear it will bring a character of rashness and danger on a most important remedy, when judiciously managed."

4th. Local congestion may be occasioned, in any part of the system, by any considerable diminution of the tone, and consequently in the power of resistance to the *vis a tergo*, in the vessels of such part. This is obviously a congestion of an atonic character, and can be remedied only by obviating the local atony, upon which it depends. It may be considered as certain, that any considerable weakness, or deficiency in the power of resistance, in the coats of the bloodvessels of any particular part or organ, in comparison with the rest of the vascular system, will occasion a preternatural determination of blood to such part, independent of any increase or diminution of the strength of the action of the heart; and I shall not now spend time in proving it.

5th. Local congestion may be occasioned, in any part, by the presence of inflammation of any species, to which it is always more or less essential. Inflammatory congestion may be either entonic or atonic, according to the character of the inflammation of which it is a part. It is to be relieved only by relieving the inflammation, which, if entonic, will require antiphlogistic treatment merely; but if atonic, it will require a deobstruent method, and, in low cases, excitants in conjunction.

Congestion may be said to be *essential* when it belongs invariably and necessarily to any particular disease, and when, in fact, it constitutes an essential part of such disease: and it may be considered as *accidental* when it is not necessary to, does not occur invariably in, and cannot be considered as making an essential part of, a disease, but only happens occasionally in certain cases of it.

From what has been said, it will be perceived that there are at least four sorts of congestion, viz. :—

1st. *Simple Superficial Congestion*, produced by a preternatural increase of the strength of the action of the heart.

2d. *Simple Visceral Congestion*, produced by diminution of the strength of the action of the heart.

3d. *Paralytic Congestion*, produced by a preternatural weakness and deficiency in the power of resistance in a part or the whole of the capillaries, or in the coats of the vessels of any particular part or organ, while the strength of the action of the heart remains in its natural state, or, at least, is not diminished in the same proportion. And

4th. *Inflammatory Congestion*, produced by the presence of topical inflammation, of some sort or species, in the part in which the congestion exists.

The first sort of congestion is always of an entonic, sthenic, or phlogistic character; the second and third sorts are always of an atonic or asthenic character; while the fourth sort may be either entonic, irritative, or entonic, according to the specific nature and the diathesis of the inflammation, and according to the general condition of the subject of the disease.

At the present time, when congestion is exalted to such a high rank in pathology, we often hear certain articles of the materia medica mentioned as being liable to produce this effect. Thus, for example, cinchona, with many practitioners and writers, has acquired this character, and is often styled a congesting tonic. In my view, however, no article is capable of producing congestions, unless it is competent to increase the strength of the action of the heart, to such a degree as not only to occasion a preternatural determination of blood into the capillaries of every part, so as to leave the great vessels comparatively empty—or unless it is adequate to the production of so great atony or weakness in the coats of the bloodvessels of some part or organ, in comparison with other parts of the system, that, from mere want of resistance to the ordinary *vis a tergo*, an accumulation of blood takes place—or unless it has the power of weakening the strength of the action of the heart, to such a degree that it is no longer able to force the blood into the capillaries of the surface, in opposition to the ordinary atmospheric pressure. Now neither cinchona, nor any analogous article, has any such powers; and yet it is to these articles particularly, and to the tonics generally, that the property of producing congestion is mainly attributed. It is, in reality, in other classes of remedies, beside the tonics, that congesting articles must be sought; for it would be an absurdity to say that a tonic, or a stimulant, is both congesting and tonic or stimulant at one and the same time. It is true that tonics and excitants, if given during the existence of true phlogistic diathesis, might so increase that condition, as to produce congestion where it did not previously exist. But what practitioner, in his senses, would think of employing such articles in such a condition of the system? At all events, no tonic, if given in a healthy, or in an atonic state, is ever capable of producing a true phlogistic diathesis. We must therefore seek for congesting agents in the other classes of medicines. Narcotics, without doubt, when so managed as either to diminish the vital energies of the brain, or the strength of the action of the heart, produce congestion in the brain and other viscera; but, when so managed, and when of such a nature as to increase the strength of the action of the heart, they do not diminish the vital energies of the brain, nor produce congestion either in the head or elsewhere. It is among the reducing, or antiphlogistic remedies, that we must look for congesting agents; and, accordingly, the several processes and agents of this class of medicines are found to produce visceral congestion, precisely in the same proportion in which they produce a preternatural weakness of the action of the heart, or a preternatural weakness of the bloodvessels of any particular part or organ. Of the antiphlogistic or reducing processes or agents, bloodletting, and purging with the refrigerant salts, are the most powerful, and of course the most efficient in the production of congestion; but nitrate of potassa, tartrate of antimony, and what is commonly called dieting, i. e. starvation, if vigorously employed, are very far indeed from being inefficient in this respect.

WILLIAM TULLY, M.D.

New Haven, July 2d, 1832.

CHOLERA—EXAMINATION AFTER DEATH.

Post Mortem Examination of a Case of Supposed Spasmodic Cholera, with Remarks. By J. A. ALLEN, M.D.

[Communicated for the Boston Medical and Surgical Journal.]

IN accordance with my suggestion, previously made, to DR. WRIGHT, of Whitehall, he has availed himself of an early opportunity of making a *post mortem* examination of a case of suspected spasmodic cholera. The patient was a child, two and a half years old, whose father was an inhabitant of that place—intemperate, resided in a poor, miserable hut, and died with symptoms of the Asiatic cholera seven days before. The father had been familiar with the emigrants who recently died at Forts Edward and Miller. The child, says Dr. W., had enjoyed good health, as the mother stated, till daylight on the morning of June 22d, when it was taken with "vomiting, purging, and cramps of the legs, stomach, &c.; discharges from the stomach and bowels, of a transparent jelly appearance; cold extremities, and sinking of the vital powers." The vomiting ceased two hours before death, which occurred in about five hours from the attack.

Dr. W., on examination, found the stomach distended with a thin, turbid fluid, which was so confined that it gushed out, through the first aperture made in its coats, to the distance of a foot or two, and continued to flow several minutes. The quantity contained in the stomach was supposed to be about three pints. The duodenum was quite empty, and the upper portion of the small intestines contained a small quantity of muco-gelatinous matter, slightly colored; further down they were more loaded with a white matter, resembling the white of an egg. In the lower portion of the smaller intestines, there was an intus-susception, of about two inches in length. The large intestines were free from any appearance of disease, and had no contents. The coats of the alimentary tube exhibited no marks of disease, except a slight discoloration in those of the stomach, and of the portion of the canal next to the incarcerated part. Two common-sized worms were found in the bowels, and several small ones. The liver and spleen were in a state of congestion with blood. The gall bladder was filled with bile, and the duct leading from it impervious with apparently concreted bilious matter.

It is to be regretted that Dr. W. made no examination of the heart, large bloodvessels, the lungs, and brain. His exhibition, however, of the case is obviously sufficient to fix the specific character of the disease, while it evolves additional facts respecting the pathological character of the alarming epidemic cholera, of which this case was probably an instance. No blame, in short, should be attributed to Dr. W. because he did not examine more thoroughly; on the contrary, he is entitled to public gratitude for what he did do, since the suspicious nature of the complaint was such that he was obliged to make his examination alone, except in the presence of a solitary old matron protected by a huge bunch of tansey.

Had this case been an instance of simple intus-susception, its fatality would not have been so speedy. This affection of the bowels was

produced by the spastic action of the muscular coats of the alimentary tube. Analogies are mentioned in the Asiatic reports. Besides, while death from intus-susception rarely occurs within several days, in the present case it took place within five hours from the attack. Had the ailment been caused by the irritation of worms, such kind of effusions and ejection would not have been discovered. In short, the symptoms of the disease, its rapid fatality, and the appearance on the autoptical examination, were in perfect accordance with those cases of cholera which have been reported from India. Upon these morbid appearances, DR. JAMESON remarks—"In many, especially those who died early, the stomach and intestinal canal were found full of a whitish, turbid, dark or green-colored fluid, without the slightest mark of inflammation. The liver was congested, inflamed, and harder than usual, &c." The stomach and gall bladder have almost universally been found filled, and several of the vital organs gorged with blood.

In summing up the whole history of this epidemic, it is evident that a deadly sedative agent presses on the vital organs, especially the nervous, vascular, and glandular systems, suspending or deranging their functions. The suspension or derangement of the action of the nervous and muscular systems is shown by the impaired sensation, and inordinate and violent muscular contractions; that of the vascular by the subsidence of the pulse, and the fatal effusions and congestions usually found in some of the vital organs. This pulselessness, as it has been called, evinces an unequal expenditure, or a want of vital power. From this sinking of the vital energies, the complaint has been called "*Death-stroke*," or "*Mort de chien*." There is an augmented or morbid action of the secernents of the mucous system, while there is a suspension of the functions of the glandular and serous systems. This is proved by the increased quantities of ejections from the stomach and bowels, while the skin, bladder, &c. seem to have entirely lost their functions; and the same may be said of the *serous membranes*; for no particular morbid appearances have been found, says DR. SCOTT, in any of the cavities of the body which are lined with serous membranes, or in these membranes themselves. The cavities of the pleura, of the pericardium, and of the peritoneum, have almost uniformly been found in a natural state. Hence it appears that in spasmodic cholera the natural functions are all in turn disordered, but not invariably so; that the vital functions, especially of the heart and bloodvessels, are invariably affected, and consequently the functions of the lungs must suffer with that of the heart. The animal and sensorial functions, it seems, suffer least of all in this morbid struggle; for the mind, we are told, usually remains clear and unimpaired.

If the preceding view of this subject be correct—and that it is, we have abundant evidence—it is obvious that no one remedial agent, and, in fact, no one class of remedial agents, can be found adequate for its cure. There must be a simultaneous combination of active remediate measures, to insure any prospect of success in a violent attack. Upon the general course adopted with the most success in India, MR. CORBIN remarks to SIR GILBERT BLANE—"The outline of the treatment alluded to, is to administer twenty grains of calomel, and to wash it down with sixty drops of laudanum, and twenty drops of oil of peppermint in

two ounces of water ; to bleed freely in the early stage, and to support the warmth by external heat, the hot bath and hot friction, and internally by cordials."

The adaptation of the above outline of practice must be governed by general principles of medical science. No fixed method, it is evident, can be adopted. The science is not thus degradingly empirical. Cholera cases, like all others, require a particular adaptation of remedies, to meet the exigency of each individual case.

Middlebury, Vt., July 2d, 1832.

BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, JULY 18, 1832.

THE CHOLERA.

IN England and Scotland, the whole number of cases to the last date was 10,499 ; deaths, 3,941. At Liverpool, the cases are not numerous. In Ireland, they are diminishing. In Montreal, the number of new cases are few, but more malignant than heretofore—almost every one proving fatal. We extract the following from the Atlas, published in this city, as, if correct, being worthy of particular note :—

A Case of Cholera in Erie, Pa.—An aged woman died of Asiatic cholera, at Erie, on the 26th June. This case, we think, is full of instruction. She was an emigrant, who arrived at Quebec on the 2d June, and whose husband died of cholera on the passage. She made her way through the Canadas to Buffalo, where she took the steamboat, and was landed at Erie on the 22d. On the 23d, she washed the clothes of her deceased husband, and on the 25th was taken with cholera, of which she died on the 26th.

At Philadelphia, one case has been reported by the Board of Health. One at Newark, N. J. ; four at Kingston, N. Y. ; and four at New Haven, Ct.

At Albany, a river town, where it was expected the disease might be very rife, the number of cases is quite limited, and a few only have been said to exist in other and neighboring towns.

At New York, the report in our last was to the 8th instant. On the 8th, there were 42 cases and 21 deaths. On the 9th, 48 cases and 14 deaths. On the 10th, 66 cases and 19 deaths. On the 11th, 76 cases and 25 deaths. On the 12th, 71 cases and 26 deaths. On the 13th, 66 cases and 32 deaths. On the 14th, 86 cases and 44 deaths. Besides these, there were reported, at Bellevue Almshouse, situated directly in the Sound, and containing eighteen or twenty hundred inmates—57 cases and 14 deaths on the 9th ; 43 cases and 25 deaths on the 10th ; 58 cases

and 25 deaths on the 11th; 48 cases and 25 deaths on the 12th; 35 cases and 17 deaths on the 13th; 29 cases and 22 deaths on the 14th.

The Medical Committee, sent hence to examine the disease at New York, have made a report, which we give below. It will be remarked, as a prominent fact in this account, that the disease, as seen by the committee, is not attended by the extreme suffering usually supposed to attend it; and we also learn, from the committee, that the death by it is easy, compared with the usual modes in which that event is occasioned by other diseases.

To the Board of Health Commissioners of the City of Boston.

The Medical Deputation, appointed by the City of Boston to visit New York, for the purpose of making observations relative to the disease now prevailing in that place, respectfully

REPORT:

THAT, in the execution of their commission, they have diligently occupied the principal part of three days in that city, in inspecting the various receptacles of the sick, and in instituting such inquiries as they deemed important relating to the object of their mission. They have visited all the cholera hospitals, together with the Almshouse at Bellevue, and some of these institutions repeatedly; they have seen upwards of two hundred cholera patients, and witnessed several post mortem examinations.

They consider the New York disease to be the same cholera which has successively prevailed in Asia, Europe, and Canada. It is distinguished by most of the malignant symptoms which have been noted in other places, and which are already familiar to medical readers—such as the sudden development of the disease; the rapidity with which the patient is prostrated; the short course after which death takes place—a majority having died within twenty-four hours of the time of supposing themselves ill, and some in a less period; thus furnishing, during the stay at New York, an opportunity to observe both the beginning and end of a considerable number of cases. It is distinguished, also, by the suddenness and peculiar character of the alvine evacuations, which at length become flocculent and pearl-colored; by the thirst, and burning at the region of the stomach; by the coldness, dampness, and lividity of the skin, and its corrugation on the hands and feet; by the shrinking and peculiar expression of the countenance; by the sound of the voice, resembling a feeble wail; by the more or less spasmodic affection of the muscles; by the sinking and loss of the pulse for a long period before death, and by the clearness of the mind to the last.

But although some of these symptoms were strongly marked in every instance, yet in few were they all assembled; and in some, but those not the less malignant, the most striking symptoms were wanting. The spasmodic affections, though occurring at some periods of almost every case, were not so common, or so long continued, as to constitute a very leading feature. The evacuations were less profuse, and continued through a smaller portion of the disease, than was to have been anticipated. The blue or dark color of the skin was also less universal; and though seldom wanting in the hands and nails, yet many presented it no where else. Very few exhibited a striking darkness of the whole body; though in many, at the last stage, the face and extremities were of a dull slate color, resembling that of the hands of mechanics who work in the black dye. The tongue was not uniformly, nor even generally, cold; nor did the countenance, even at the approach of death, exhibit always the usual peculiarities of the disease.

Another deviation, which was noticed, from the common description, was the absence of any apparent marks of great suffering. The patient seemed generally quiet and indifferent, made but little complaint, and paid but little attention to the presence of strangers, or other external objects. In a room containing ten or a dozen patients, it was not common to see more than one or two at a time under the influence of any degree of spasm, and frequently a perfect stillness prevailed.

No evidence could be obtained that a specific contagion had any agency in the origin or propagation of this epidemic. Its history was like that of an indigenous disease, and the first cases are believed to have occurred among persons confined in the Almshouse and Penitentiary. In the city, the first cases were scattered, isolated, and frequently remote from each other.

In regard to treatment, the delegation believe that more depends upon preventive, than upon remedial means. A large portion of malignant cases of cholera, among which are often found the earliest cases which occur in cities, may be regarded as for the most part incurable. This apparently

arises, not wholly from the nature of the disease, but, in perhaps a greater degree, from the character of the subjects upon whom it most readily alights. These are the degraded and suffering poor, the superannuated, the intemperate, the debauched—persons frequently whose lease of life is finished or forfeited, and in whom cholera only anticipates, by a few weeks or months, the inevitable course of nature. It would be unreasonable to expect that such cases can be within the control of remedial art.

On the other hand, it is our belief that even during the epidemic presence of the disease, in places generally salubrious, there is little cause for apprehension among the healthy, the cheerful, the active, the discreet, and temperate—those who fearlessly pursue their respective paths of duty, and occupy their minds with other subjects than the cholera. Among such persons, we have reason to believe that the attacks of the disease are comparatively rare, or, if they do occur, are mild, giving timely notice, by premonitory symptoms, which are not difficult to be removed by medical aid. It is not unreasonable to suppose that certain national temperaments, among which we may happily class that of our own population, predispose to immunity from the disease. The English, under parallel circumstances, have suffered less than the French, both in Europe and in Canada.

The assumption which has been frequently made, that the disease differently affects classes in different walks of life, is true only in reference to habits, and not to condition. The laboring part of the community, when temperate and prudent in their modes of living, are as likely as any who could be named to escape the disease. The numerous operative classes, the day laborers, also domestics who reside in clean and comfortable houses, may be expected, certainly as much as any class whatever, to enjoy health, under the ordinary precautions of temperance and regularity of life.

The result of their observations, made in the city of New York, leads this delegation to feel the urgent importance of completing in this city the preparatory arrangements which have been so wisely begun. The disease, perhaps, may not visit our healthy region at all; nevertheless, if it does come, it should not find us unprepared. The provisional hospitals, which have already been engaged and organised, furnish honorable testimonials to the wisdom of the health commissioners. We would beg leave respectfully to urge the importance of engaging, at an early period, a competent number of nurses, carriers, and attendants, both male and female, and particularly that these should be persons of good character and temperate habits, for reasons which will be obvious to the board.

It is expedient that a supply of fuel should be deposited in each of the hospitals, with fire places or open stoves in most of the rooms. During the cold days of this week, the patients in the New York hospitals were thought to suffer by the reduced temperature of the atmosphere—the disease being one in which external warmth is difficult to be maintained. To exclude the cold air, the attendants had recourse, in many cases, to closing the windows and doors of the sick rooms, thus producing a confined and concentrated atmosphere, which, if long continued, must tend to aggravate, as well as to multiply the disease. It would be better, in such cases, to keep up fires sufficient for the necessities of the patients, while the external air might be freely admitted, to accomplish the necessary ventilation.

Litters for the conveyance of the sick should be provided and kept at all the hospitals. These may be conveniently made, in the form of a wide hand-barrow, with a sacking and mattress, the top covered with a cloth awning. The men who are to carry them should be in attendance at the hospitals.

The provisions necessary for the complete and early organization of the cholera hospitals will involve a considerable, and perhaps an unnecessary expense. They are such, however, as must appear proper to every wise man in a reflecting community. Should the event prove that they have been altogether superfluous, there will be sufficient reason devoutly to thank Providence that they are so.

Boston, July 13, 1832.

JACOB BIGLOW,
JOHN WARE,
JOSHUA B. FLINT.

In this city, every proper preparation has been made by the authorities for the reception of the disease. Three provisionary hospitals have been fitted up; one at the west part of the city, with the attendance of Drs. Lewis, Stevenson, Fisher, and Dyer; one at the north, with Drs. Ware, M'Kean, Choate, and Thompson; and one on Fort Hill, with Drs. Adams, Homans, Davis, and Davenport. Two or three others are in contemplation. Every accommodation is provided at the hospitals, for such as may be taken sick of the disease without proper conveniences at their own houses, and medical assistance will be at hand at any hour

of the day or night. No instance, we apprehend, has been presented, in any place the disease has threatened, of a more thorough or better organised system of preparation, than that now exhibited in this city. Adding to this the general cleanliness of every private and public place, and our elevated and healthy situation, we have every reason to expect that the disease, if it should appear among us, will be limited in its fatality, and divested of many of its horrors.

The 4 cases of cholera at New Haven were in the same family. Mrs. Northup and her son were first attacked. They had come from New York, where they resided in a family in which two persons had died of cholera. Shortly after, Mr. John Jones and wife, the father and mother of Mrs. Northup, and both intemperate, were seized with the same disease. No other cases have appeared at New Haven. We have more and more reason to believe that the view we formerly took, of the plurality of causes of this disease, will be found to be correct.

Effect of Cholera on the Fetus in Utero.—The London Medical Gazette states that a patient, far advanced in pregnancy, was carried into the cholera hospital in Dublin, and, by a stethoscopic examination, it was ascertained that the child was alive. The next day the woman was dying, and, from the cessation of the fetal pulsation, it was judged that the child was already dead. In another cholera patient, also in the same hospital, it was ascertained that the fetus died before the mother.

Whole number of deaths in Boston for the week ending July 14, 24. Males, 12—Females, 12.
Of infantile, 4—marasmus, 2—typhus fever, 2—consumption, 3—scarlet fever, 1—inflammation on the lungs, 1—measles, 3—unknown, 2—convulsions, 2—bleeding at the lungs, 1—from a wound, 1—dropsy, 1—stoppage in the throat, 1.

ADVERTISEMENTS.

DENTISTS' FINE GOLD FOIL.

THIS very superior Article, manufactured by MARCUS BULL, Philadelphia, is kept constantly for Sale, by the Subscriber, at the Manufacturer's Prices. For the excellence of this Foil, reference may be made to DR. J. F. FLAGG, DR. N. C. KEEP, and DR. HARWOOD.

July 11.

NATHAN JARVIS, 188 Washington Street.

JUST PUBLISHED, at the Office of the Boston Medical and Surgical Journal, "A RATIONAL VIEW OF THE SPASMODIC CHOLERA, chiefly with regard to the Best Means of Preventing it. By a Physician." The purpose of the writer has been to embody, in a plain, practical form, all the important facts and suggestions, in regard to the prevention of Cholera, which have been developed in its march through other countries, and in its progress thus far in our own. These have been so condensed as to form a manual which, from its cheapness, may be within the reach of those to whom, on account of their condition and circumstances, it is most necessary.—Price, 12 1/2 cents.

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